National Aeronautics and Space Administration

AETD

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Wallops Engineering Services Contract (WESC)

Industry Day Briefing

engineering

Presented By:

Steve Nelson, David Wilcox, Lissette Martinez, Pamela Pittman, Sarah Daugherty and Finale Uptegrow

Date: January 7, 2013

Agenda

• Welcome	Steve Nelson, AETD
• Industry Day Logistics & Acquisition Information	Finale Uptegrow, Procurement
• WFF Overview	Dave Wilcox, AETD
• Engineering Services Overview	Lissette Martinez, AETD
• Lunch 11:00 p.m. to 12:00 p.m.	Offsite
• Bus Tour 12:00 p.m.-3:30 p.m.	Sarah Daugherty/Dave Wilcox RMMO/AETD

Logistics

- Emergency – 911 (757-824-1333 from a cell phone)
- Emergency exits
- Rest Rooms
- Local Restaurants
- Tour locations- Bldg. E109, Range Control Center, Island Base

Guidelines for Communication

- Offerors will submit their questions in writing to the Contracting Officer at the end of the conference on the index cards provided.

- Questions received from this event will be combined with questions formerly submitted regarding the Draft RFP and responses shall be posted to NASA Acquisition Internet Service (NAIS) and FedBizOpps websites collectively.

- Any changes to the Draft RFP will be incorporated into the final version of the RFP.

Information Exchange

- After release of the **final** RFP, communication will be restricted to exchanges with the Contracting Officer and/or Contract Specialist.
- Presentation materials, written questions and answers, and solicitation revisions will be provided to all prospective Offerors via formal written amendment to the RFP on NAIS and FedBizOpps.
- Prior to submission of proposals and commencement of discussions, Offeror's questions about the RFP should be asked in a manner that does not disclose the Offeror’s proprietary or confidential information as all questions and answers will be published by the Government on the NAIS and Fed Biz Ops, if an amendment is required.

Disclaimer

- These slides are not to be interpreted as a comprehensive description of the requirements in the Draft Request for Proposal (DRFP).

- To the extent there are any inconsistencies between this briefing and the final RFP, the final RFP shall govern.

- Any response to general questions verbally during the conference shall not be interpreted as an official answer.

Contract Information

- Cost Plus Fixed Fee (CPFF) Indefinite Delivery/Indefinite Quantity (IDIQ) requirement issued via task orders.
- Single Award
- Base period of performance/effective ordering period of 5 years.
- Small Business Set-aside
- NAICS Code – 541712(Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology) 1000 employees size standard

Acquisition Schedule

•Final RFP Release	Jan/Feb 2013
•Proposals Received	March 2013
•Selection	April 2014
•Phase-In Award*	April 2014
•Phase-In Complete	May 2014
•Contract Start	May 2014

*Separate contract vehicle

Wallops Flight Facility

Three Major Parcels 6000 Acres

- *Wallops Main Base 1900 Acres*
  - *Administrative & Technical Offices*
  - *Tracking & Data Acquisition*
  - *Range Control Center*
  - *Ordnance Storage/Processing*
  - *R&D, Processing Facilities*
  - *Research Airport*
  - *Navy Administration/Housing*
  - *Coast Guard Housing*
- *Wallops Island 3000 Acres*
  - *Launch Sites*
  - *Blockhouses*
  - *Radar*
  - *Processing Facilities*
  - *Dynamic Spin Balance*
  - *Navy Operational Facilities*
- *Wallops Mainland 100 Acres*
  - *Tracking & Data Acquisition*
- *Marshland 1000 Acres*

Wallops Main Base

Wallops Island

Vision & Mission Statements

Vision

Wallops Facility will be a national resource for enabling low-cost aerospace-based science and technology

Mission

- Enable scientific discovery
- Enable technology development
- Enable education, commercial space development, & innovative partnerships

Technical Activities

- Research Carriers
- Sounding Rockets
- Balloons
- Aircraft & UAVs
- Small Orbital Carriers
- Mission Operations

- Launch Range
- Research Airport
- Orbital Tracking
- Engineering Development & Technology Validation
- Earth Science Research

Wallops Flagship Programs and Projects

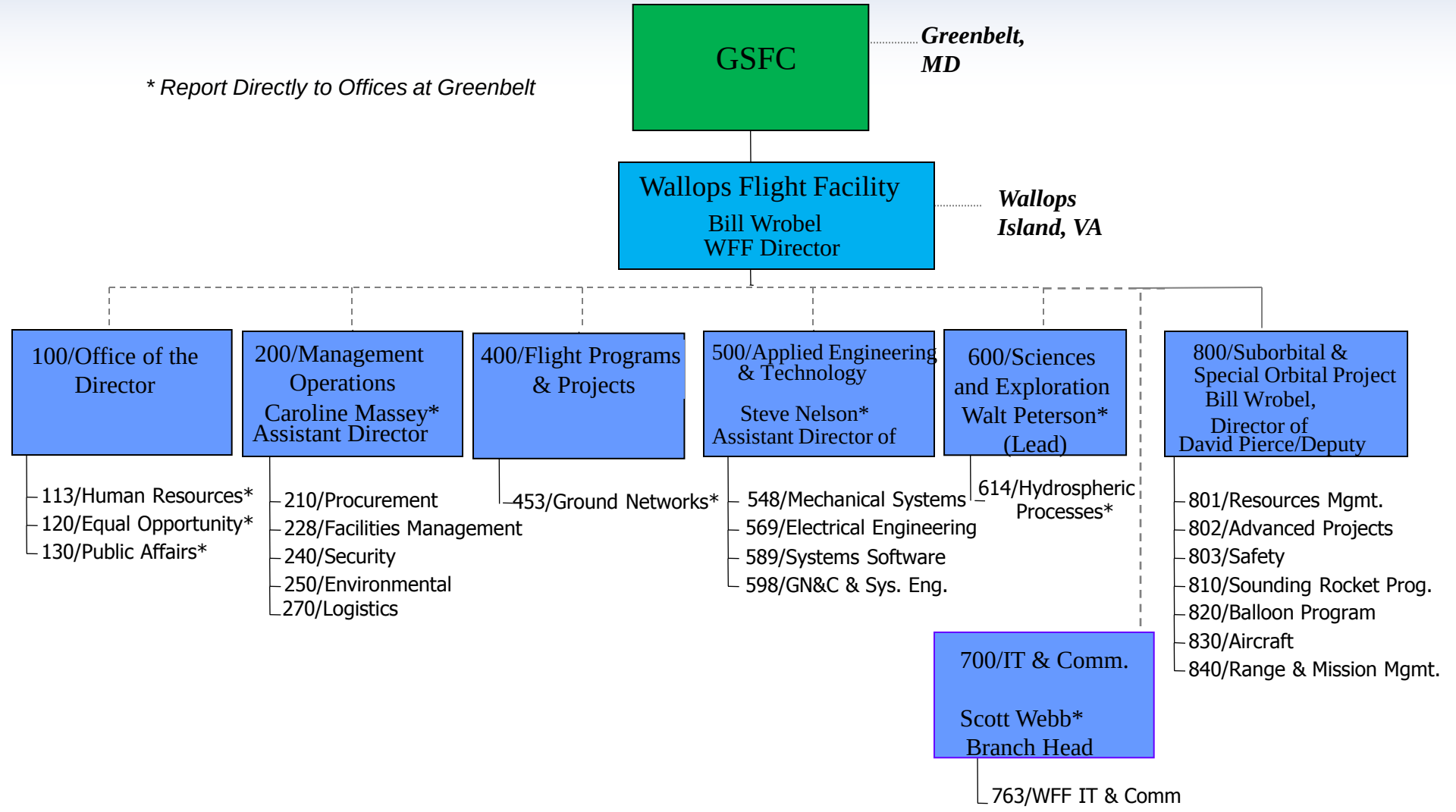
Sounding Rockets (NSROC)

Aircraft Projects (AOC)

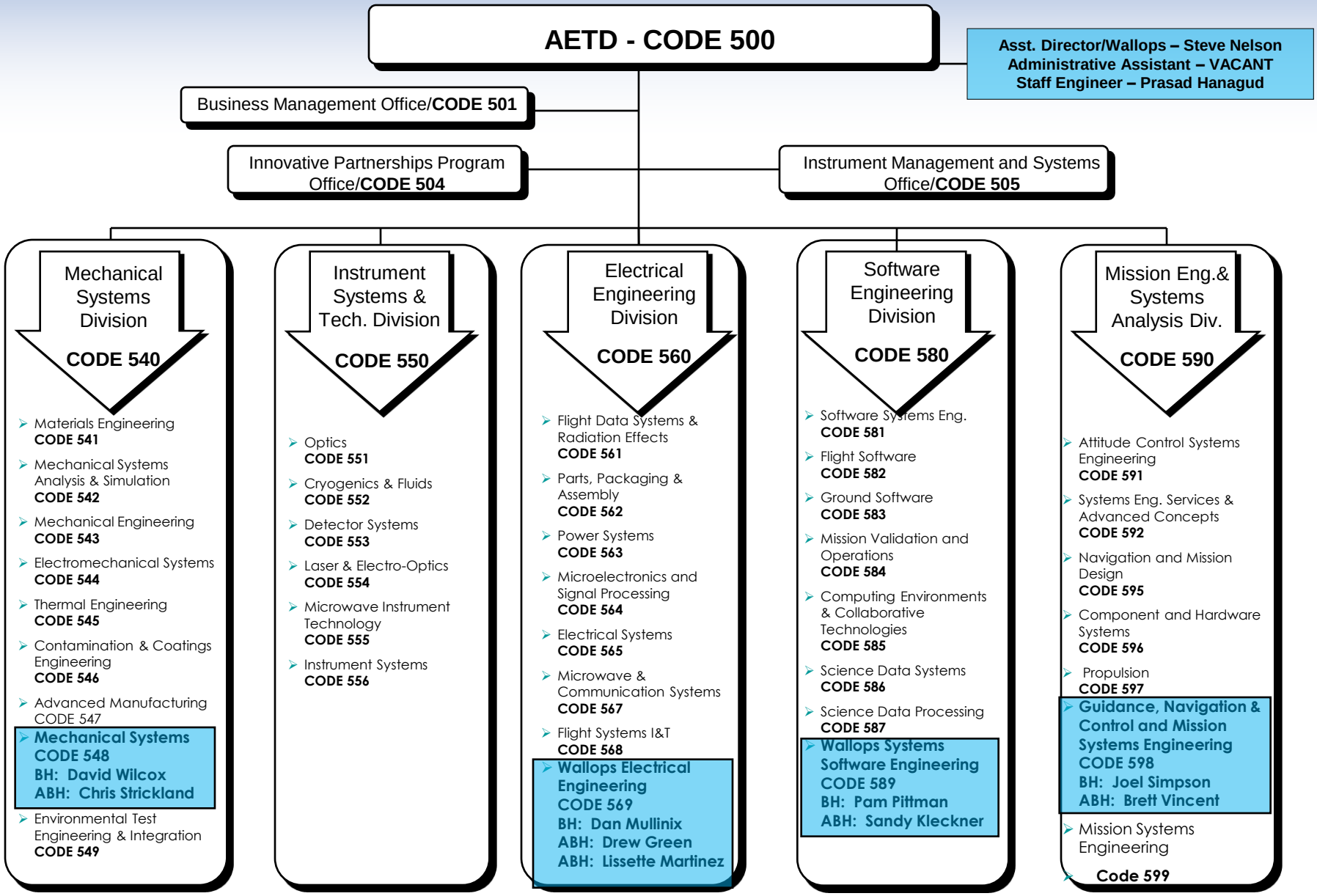
Balloon Program (BPOC/CSBF)

WFF Range (ROC)

Organizational Structure



AETD Organization
With Wallops Organizations Highlighted Blue



AETD/Wallops Competencies

The Applied Engineering and Technology Directorate (AETD) at Wallops exists to provide engineering support to the Programs/Projects and activities performed at the WFF.

Mechanical Systems Branch

CODE 548

- Mechanical Engineering
- Materials Engineering
- Mechanical Systems Analysis & Simulation
- Electro-mechanical Systems
- Thermal Engineering
- Space/Launch Vehicle Integration, Assembly & Testing

Electrical Engineering Branch

CODE 569

- Flight Avionics Systems
- Electrical and Power Systems
- Command & Data Systems
- Electromagnetics
- Spectrum Management
- Microwave & Communication Systems
- Systems Integration & Test
- Range & Ground Network Instrumentation

Systems Software Engineering Branch

CODE 589

- Ground Data Systems
- Flight Data Systems
- Modeling and Simulation
- Advanced Architectures and Automation
- Systems Integration & Test

GN&C & Mission Systems Eng. Branch

CODE 598

- Missions Systems Engineering
- Flight Dynamics Analysis
- Flight Mechanics
- Control System Algorithms
- Components and Hardware Systems
- Propulsion
- Systems Integration & Test

AETD-WFF Projects

- Majority of work supports Code 800 project offices
- Minimal support provided historically to Greenbelt flight projects
- AETD-WFF pursues technology development funds independently; most of this work is performed by civil servants
- Example projects to follow

2009 - Max Launch Abort System (MLAS)

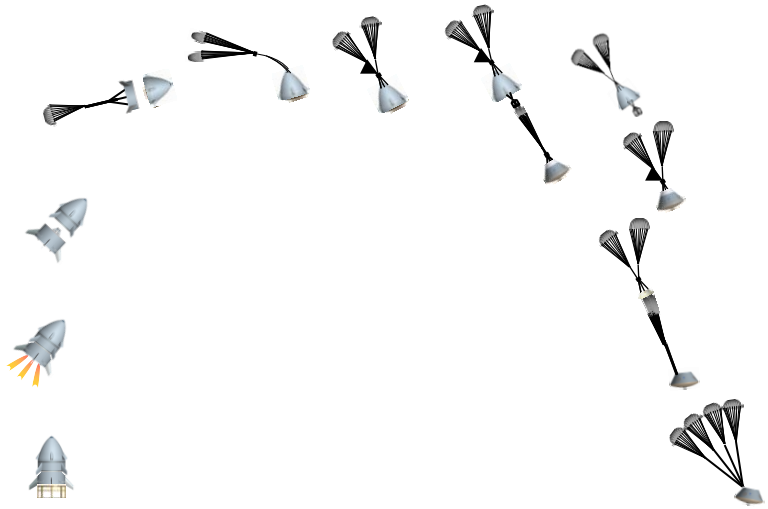
Objective:

•Develop & conduct full-scale demonstration of alternate method to conduct an abort of NASA's Orion Crew Module

•Led by NESC & sponsored by Office of Chief Engineer. Wallops roles include:

- Subsystem engineering
- Fabrication
- I&T
- Launch & Recovery

•Launched 7/09

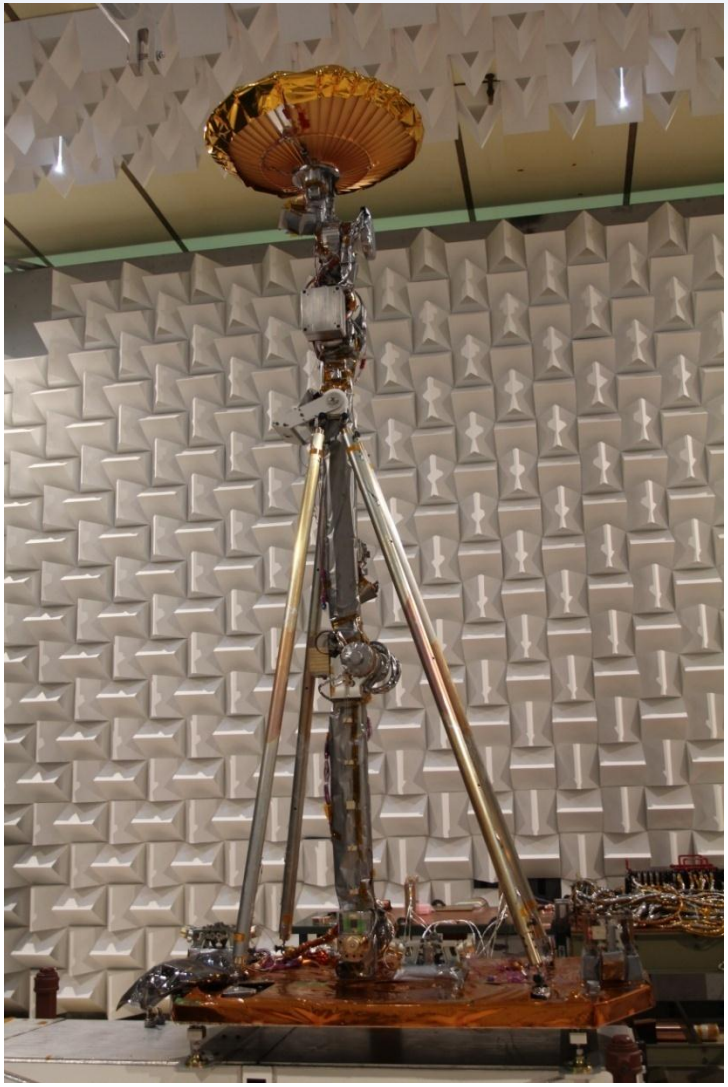


LDSD

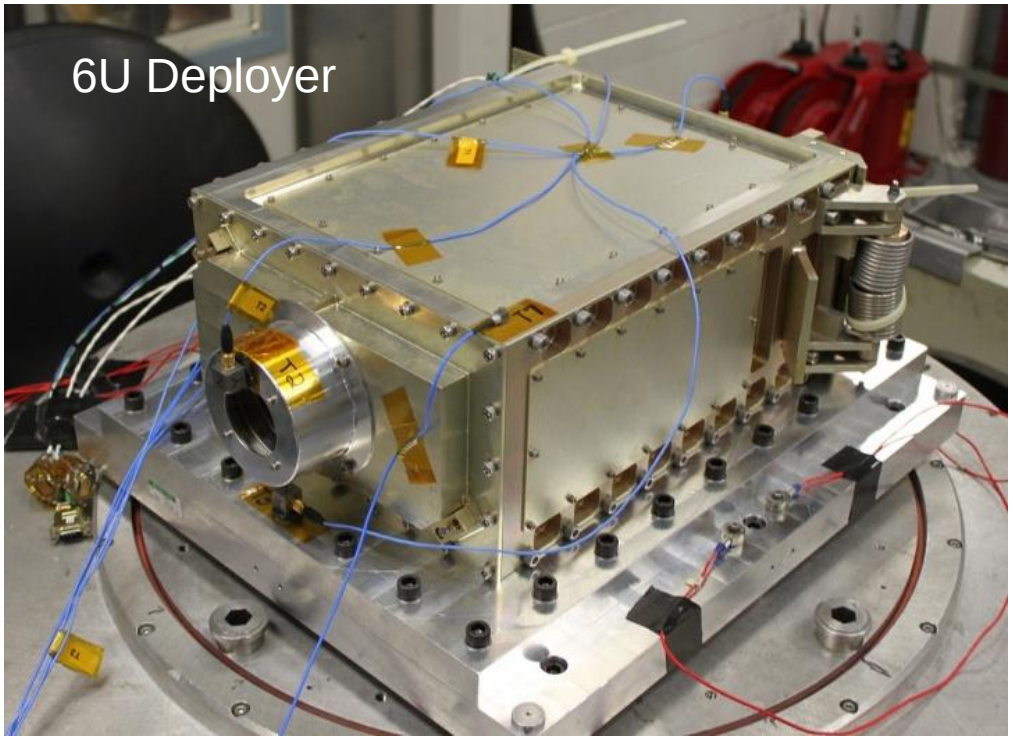
- LDSD (Low Density Supersonic Decelerator) Project is an OCT/JPL technology demonstration of a Mars decelerator vehicle
- Dropping test article from high altitude balloons, then firing a Star 48 Motor to achieve flight performance characteristics
- Flights planned in 2014 and 2015

LDSD Vehicle Configured Below Balloon Flight Train

GPM HGAS System Level Testing

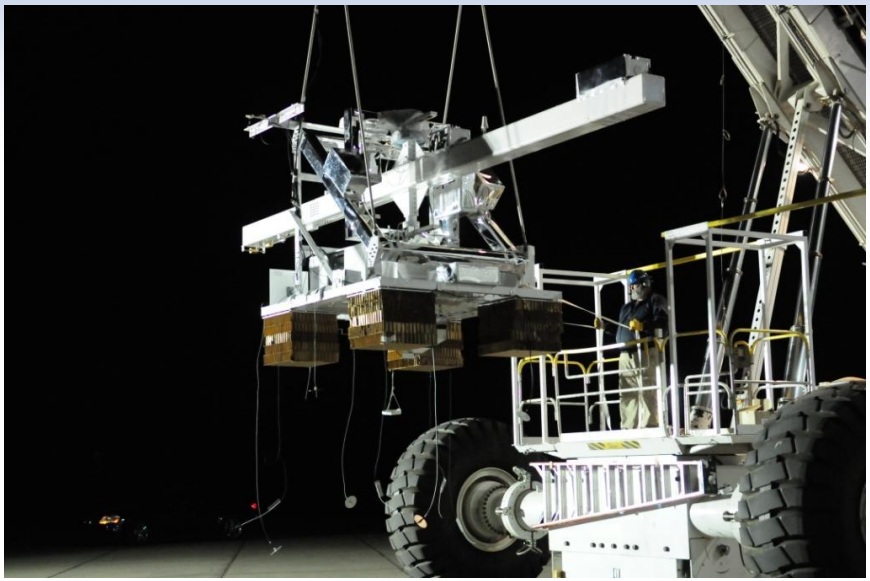


6U SmallSat/CubeSat



Wallops Arc Second Pointer (WASP)

WASP Test Gondola pre-launch, October 7, 2011, Fort Sumner, New Mexico



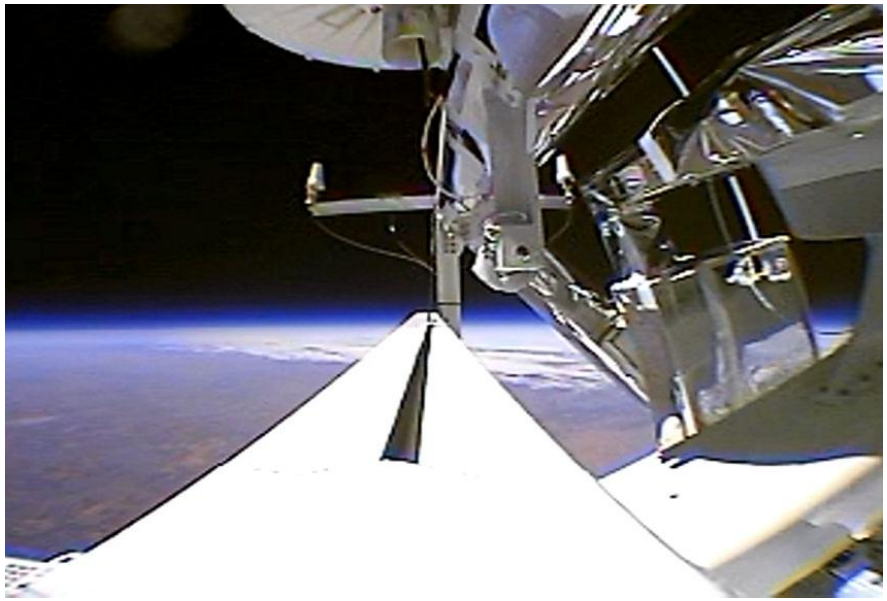
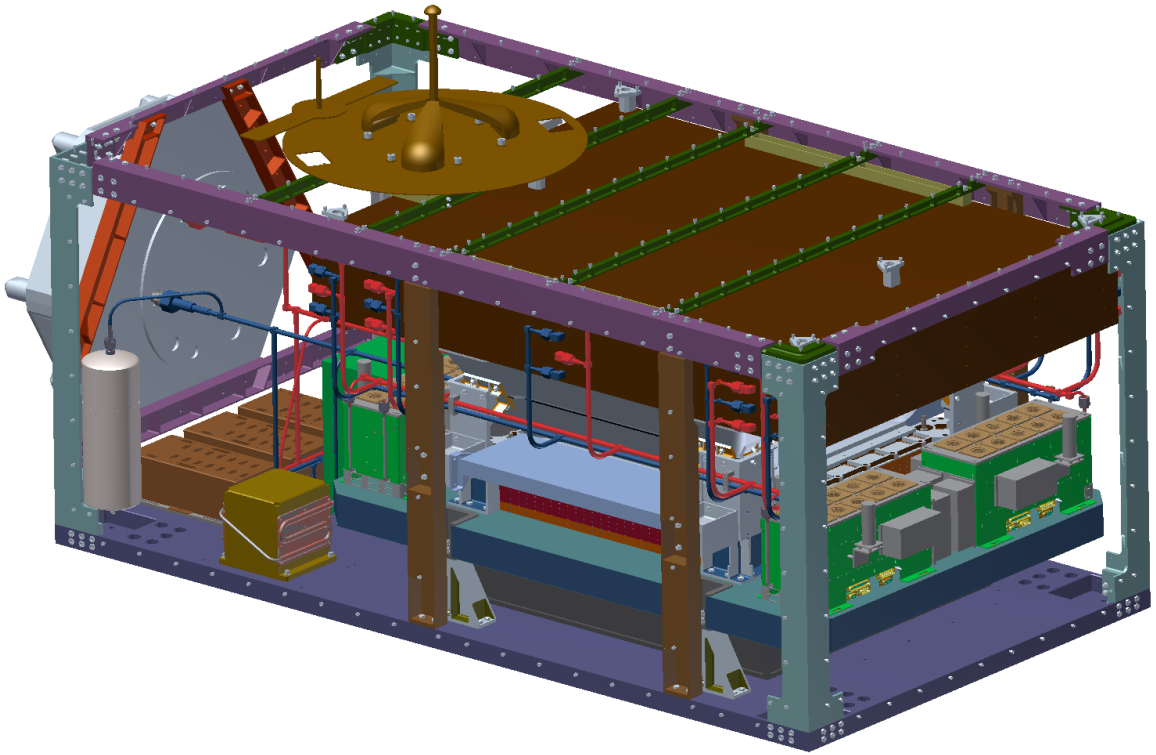


Image from float altitude, WASP, October 7, 2011

Sub-arcsecond pointing stability was achieved during flight.

ISS-CREAM

- ISS payload based on the University of MD Cosmic Ray Energetics and Mass (CREAM) balloon missions.
- To investigate the low fluxes of high-energy cosmic rays.
- Designed to integrate on a SpaceX launch.



Aircraft Support

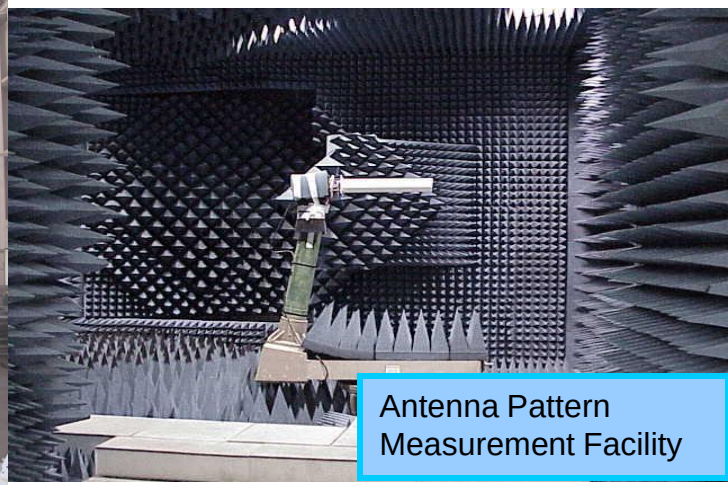
Multi-Purpose Payload Processing Facility

EMI/EMC Facility

Thermal Vac Chamber

High Bay East

High Bay West



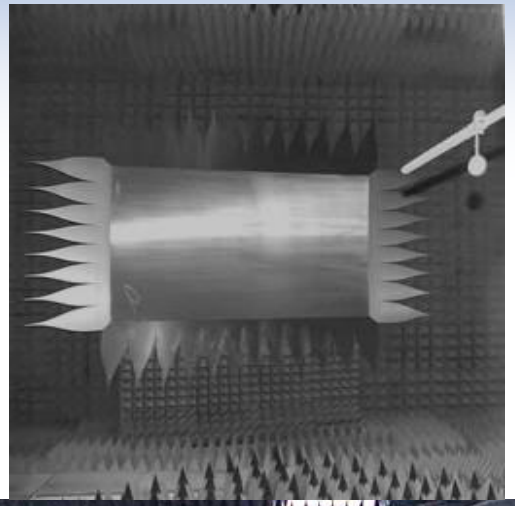
Antenna Pattern Measurement Facility

EMI/EMC Measurement Facility

- MIL 461/462 Compliant and ANSI C63 Pre-Compliant Shielded EMI/EMC Measurement Facility for Radiated and Conducted Susceptibility and Emissions measurements.
- 12 ft. Wide x 18 ft. Long Main Chamber is lined with an absorber rated up to 40GHz.
- Shielded Control Room.

Antenna Pattern Measurement Facility

- A shielded Dual-Mode Far Field/Compact Range Chamber for measurement and analysis of antenna pattern data.
  - Far-Field mode: 400 MHz - 2 GHz frequency range.
  - Compact Range Mode: 2 GHz - 100 GHz frequency range.
- The data collection system allows both Phase and Amplitude Pattern Measurements.
- Maintain feeds and standard gain horns for UHF, L-Band, S-band, X-band, Ku-Band, and Ka-Band.



Thermal Vacuum Chamber

- Space-rated Thermal Vacuum Chamber
- 1 X 10-6 Torr
- 4 ft. x 6 ft. test area
- Smaller chambers also available

High Bay East

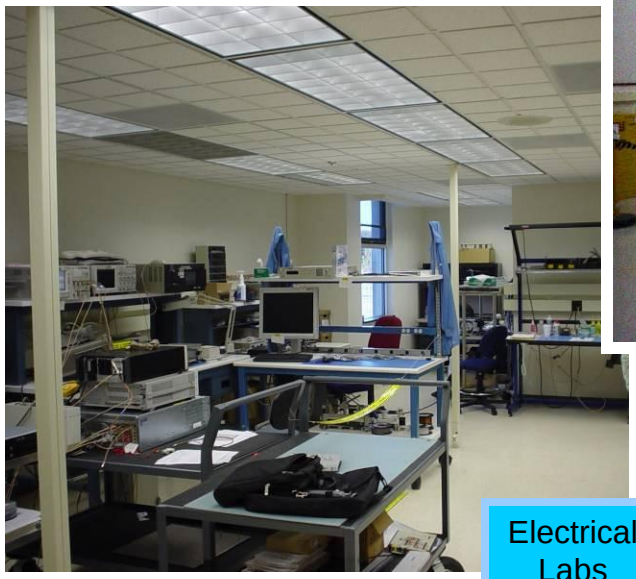
- Class 100,000 cleanroom with an ESD floor.
- 40 ft. x 60 ft. cleanroom with 20 ft. x 40 ft. Airlock/Ante Room
- 5-Ton Bridge Crane; 25 ft. hook height; Remote Controls

AETD Labs in Engineering Building


Mission Planning Lab


Fabrication Area


I&T Labs


Electrical Labs


GPS Simulator Lab

WES Historical Overview

- Current Contract is a Professional Engineering Services (PES) Schedule GSA Blanket Purchase Agreement.
- There are a total of 77 subtasks.
- As many as 50 subtasks open at any one given time
- Currently there are 22 active subtasks.
- Scope of effort is contained in the Statement of Work
  - Systems Engineering
  - Electrical Systems
  - Software Systems
  - Mechanical Systems
  - Guidance, Navigation and Control Systems
  - Safety Engineering*
  - Metrology
  - Project Management
  - Facilities Engineering Support

Wallops Culture

- Small projects, short timelines
- Typical project support structure:
  - Civil Servant Product Design Lead (PDL)
  - Available Civil Servant engineers and technicians
  - Teams are supplemented by contractor personnel
- WESC support historically heavier in mechanical & software engineering areas
- Overlap and Interaction with Code 800 operations contracts:
  - Range Operations Contract (ROC)
  - Flight Projects and their operations contracts (NSROC)

Customers

- **Code 800**
  - WFF Range (840)
  - Balloons (820)
  - Aircraft (830)
  - Advanced Projects (802)
  - Sounding Rockets (810)
  - Flight and Ground Safety (803)
  - WFF test facilities support
- **Code 600**
- **Code 200**
  - Facilities (228)
- Technology Developments (IRAD)
- **GSFC**
  - Flight Projects subsystems engineering (GPM)

Current Project Support

- GPM High Gain Antenna System (HGAS): engineering support to testing activities as needed
- LADEE (Minotaur V ELV launch of Ames spacecraft): ground systems engineering support for range operations
- Wallops Arc Second Pointer (WASP): integration of Balloon gondola systems
- ISS-CREAM (Balloon instrument re-packaged as external attached Space Station payload): design, analysis, integration, testing and delivery of payload hardware
- LDSD (Balloon-launched re-entry test vehicle): Electrical and mechanical subsystems support to re-entry vehicle being built by JPL
- Range Software Development
- UAV integration and flight systems support (?)
- Precipitation Measurement Mission Support

Current Steady-State Support

- WFF Calibration Lab: Calibration and certification services for IMTE for all WFF organizations
- Software Systems Administration Services: System Admin services for all AETD “non-ACES” systems and networks
- Facilities Engineering support: Inspections

Work Forecast

- WASP-related balloon subsystems support appears to be a growth area for AETD-Wallops
- Ground systems engineering support for the expanding WFF Range launch activities
- Small Satellites (Cubesats, 6U Spacecraft and Deployer Systems) is a growth area for AETD-Wallops
- Possibilities for increased use of AETD-owned and operated test facilities; many of these facilities are not heavily used currently

Task Order Management

- Task Order Management System (TOMS) used to manage current contract
- WIIMS another available task order management option